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EXAMINER	
NGUYEN, PHUONGCHAU BA	
ART UNIT	PAPER NUMBER
2665	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/228,445	FREITAG ET AL.	
	Examiner	Art Unit	
	Phuongchau Ba Nguyen	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11-15-04 response* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,11 and 14-16* is/are rejected.

7)☒ Claim(s) *3-10,12 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claim 11 is rejected under 35 U.S.C. 102(e) as being anticipated by Chiu (6,327,259).

Regarding claim 11:

Chiu discloses a method for transmitting and receiving a serial data stream (HDLC) including alternating portions of multiple serial data channels, comprising:

providing a plurality of functional units (512, 514, 516, 518 in fig.7) each configured to perform a specific function of a serial communication protocol (HDLC) upon the portions (time slot) of the multiple serial data channels {col.5, lines 28-63},

wherein each functional unit is a state machine having a set of unique operating states (active or inactive state; col.10, lines 14-16), and

transferring state information between the plurality of functional units (512, 514, 516, 518) and a memory unit (500) such that the plurality of functional units operates alternately upon the portions (time slot) of the multiple serial data channels {col.5, lines 28-63; col.7, lines 53-67; col.10, lines 8-13};

wherein different state information is transferred for each serial data channel depending on which serial data channel's portion is being operated on by the plurality of functional units {col.10, lines 8-32}.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rowett (5,991,817) in view Chiu (6,327,259).

Regarding claim 1:

Rowett discloses a serial communication controller (45, fig.1) for transmitting and receiving a serial data stream {col.4, lines 34-41} including multiple serial data channels (fig.11a) having portions which alternate in time with respect to each other {col.10, line 34-col.11, line 7}.

Rowett does not explicitly disclose the detailed of the serial communication controller as claimed which comprising a plurality of functional units configured to operate in series according to a serial communication protocol, wherein each functional unit is configured to perform a different specific function of said serial communication protocol, and wherein the plurality of functional units operates in time sequence upon the portions of the multiple serial data channels; and wherein the plurality of functional units is configured to perform said serial communication protocol on the multiple serial data channels.

However, in the same field of endeavor, Chiu discloses a detailed structure of the serial communication controller comprising:

a plurality of functional units (512, 514, 516, 518; fig.7) configured to operate in series according to a serial communication protocol (HDLC), wherein each functional unit is configured to perform a different specific function of said serial communication protocol, and wherein the plurality of functional units operates in time sequence (figs.7-8; col.5, lines 33-38) upon the portions of the multiple serial data channels (channels B and D, col.5, lines 38-42){col.7, line 53-col.8, line 3; figs.7-8}; and

wherein the plurality of functional units is configured to perform said serial communication protocol (HDLC) on the multiple serial data channels {col.10, lines 8-25}.

Therefore, it would have been obvious to an artisan to apply Chiu's teaching to Rowett's system with the motivation being to improve interface for a time division multiplexed bus wherein the serial communication is using less than the entire time slot and to selectively transmit at a particular bit position within a frame on the TDM bus.

Regarding claim 2:

Rowett does not explicitly disclose wherein the serial data stream includes digital data of only one of the multiple serial data channels at any given time, and wherein each of the multiple serial data channels is assigned a periodically recurring time segment and is active during its assigned time segment, and wherein the plurality of functional units operates upon the active serial data channel.

However, in the same field of endeavor, Chiu discloses wherein the serial data stream includes digital data of only one of the multiple serial data channels at any given time, and wherein each of the multiple serial data channels is assigned a periodically recurring time segment and is active during its assigned time segment, and wherein the plurality of functional units operates upon the active serial data channel {col.6, lines 32-51}. Therefore, it would have been obvious to an artisan to apply Chiu's teaching to Rowett's system with the motivation being to provide multiple HDLC channels to communicate over a single external bus via individually assigned TSAs, and to allow data of any width to be placed anywhere within the time division multiplexed frame.

5. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurnick (5,721,726) in view Chiu (6,327,259).

Regarding claim 14:

Kurnick discloses a serial communication system, comprising:

an interface unit (74) adapted for coupling to a transmission medium (54), wherein the interface unit is configured to receive a receive serial data stream including alternating portions of multiple serial data channels from the transmission medium and to provide the receive serial data stream;

a serial communication controller (60-66, fig.2) coupled to receive the clock signal (from internal timer 52 in RISC 50, fig.3 or TSA 76, fig.2) and the receive serial data stream (from serial interface 74, fig.2){col.5, lines 60-62, 64-65}.

Kurnick does not explicitly disclose wherein the serial communication controller comprises a plurality of functional units (60-66) configured to operate in series according to a serial communication protocol, and wherein each functional unit is configured to perform a different specific function of said serial communication protocol, and wherein the plurality of functional units operates alternately upon the portions of the multiple serial data channels of the receive serial data stream to perform said serial communication protocol on the multiple serial data channels.

However, in the same field of endeavor, Chiu discloses the serial communication controller (HDLCA-200, fig.6) comprises a plurality of functional units (elements 512, 514, 516, 518 in 502-fig.8 and 506-fig.7) configured to operate in series according to a serial communication protocol (HDLC), and wherein each functional unit (512, 514, 516, 518) is configured to perform a different specific function of said serial communication protocol, and wherein the plurality of functional units operates alternately upon the portions of the multiple serial data channels of the receive serial data stream to perform said serial communication protocol on the multiple serial data channels {figs.7-8}.

Therefore, it would have been obvious to an artisan to apply Chiu's teaching to Kurnick's system with the motivation being to improve interface for a time division multiplexed bus wherein the serial communication is using less than the entire time slot and to selectively transmit at a particular bit position within a frame on the TDM bus.

Regarding claim 15:

Kurnick further discloses wherein the serial communication controller (24) is further configured to produce a transmit serial data stream including alternating portions of multiple serial data channels {col.6, lines 33-46}, and wherein the interface unit (74) is coupled to receive the transmit serial data stream and further configure to drive the transmit serial data stream upon the transmission medium (28){fig.2, Kurnick}.

Regarding claim 16:

Kurnick further discloses wherein the serial communication controller (24) is adapted for coupling to a host processor (22){fig.1, Kurnick}.

Allowable Subject Matter

6. Claims 3-5, 12-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 6-10 are allowed.

Response to Arguments

8. Applicant's arguments filed 11-15-4 have been fully considered but they are not persuasive.

A/. Applicant argued that Chiu does not teach "a plurality of functional units each configured to perform a specific function of a serial communication protocol upon portions of multiple serial data channels".

In reply, applicant is directed to figure 7 in Chiu wherein the plurality of units 512, 514, 516, 518 each performs a specific function (i.e., crc checker-514, parallel to serial-518, fig.7) of serial communication protocol (the transmitter-506-fig.6 for transmitting data using the channel of HDLCA channel-200-fig.6 having HDLC protocol) upon portion (time slots in the HDLCA channel-200-figure 6) of multiple serial data channels (of the HDLC channels, see column 9, line 30).

B/. Applicant argued that Chiu does not teach "each functional unit is a state machine having a set of unique operating states".

In reply, applicant is directed to column 10, lines 14-16 in Chiu wherein the internal state machines (not shown) are reset at each functional unit in the transmitter 506.

C/. Applicant argued that Chiu does not teach "state information stored within a given functional unit determines the one of the unique operating states in which the functional unit is operating".

In reply, applicant is directed to column 10, lines 16-25 in Chiu wherein deriving the state from the internal state machines (not shown) for determining the NEXT transmitting or receiving bit that would fall on a byte boundary (see also column 9, lines 5-8).

D/. Applicant argued that Chiu does not teach "transferring state information between the plurality of functional units and a memory unit such that the plurality of functional units operates alternately upon the portions of the multiple serial data channels".

In reply, applicant is directed to column 9, lines 5-8 wherein the state information (the transmitting or receiving bit) is transferring between the plurality of functional units (512, 514, 516, 518-fig.7) and shift registers and various state machines (memory unit) such that the plurality of functional units (512, 514, 516, 518-fig.7) operates alternately upon the portions (timeslots in the HDLCA channel-200, see column 10, lines 8-12) of the multiple serial data channels (the HDLC channels).

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchau Ba Nguyen whose telephone number is 571-272-3148. The examiner can normally be reached on Monday-Friday from 10:00 a.m. to 2:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

PN

Phuongchau Ba Nguyen
Examiner
Art Unit 2665

May 16, 2005

DUC HO
PRIMARY EXAMINER

Duc Ho

5_16_05